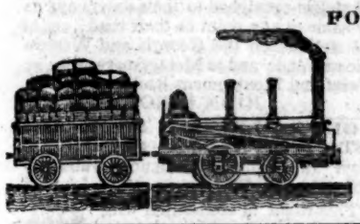
Cayuga Steam Furnace

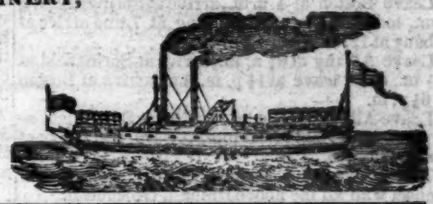
AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY, AND MINES.



ESTABLISHED 1831.



PUBLISHED WEEKLY, AT No. 23 CHAMBERS STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM.

SECOND QUARTO SERIES, VOL. II., No. 27.] SATURDAY, JULY 4, 1846. [WHOLE No. 524, VOL. XIX.

BOSTON AND ALBANY.—WESTERN RAILROAD.—Fare Reduced.


1846..Spring Arrangement..1846


Commencing April 1st.

Passenger trains leave daily, Sundays excepted—

Boston	7½ p. m.	and 4 p. m.	for Albany.
Albany	6½ "	and 2½ "	for Boston.
Springfield	7 "	and 1 "	for Albany.
Springfield	7 "	and 1½ "	for Boston.

Boston, Albany and Troy:

Leave Boston at 7½ a. m., arrive at Springfield at 12 m., dine, leave at 1 p. m., and reach Albany at 6½ p. m.

Leave Boston at 4 p. m., arrive at Springfield at 8 p. m., lodge, leave next morning at 7, and arrive at Albany at 12½ m.

Leave Albany at 6½ a. m., arrive at Springfield at ½ m., dine, leave at 1½ p. m., and arrive at Boston 6½ p. m.

Leave Albany at 2½ p. m., arrive at Springfield at 8½ p. m., lodge, leave next morning at 7, and arrive at Boston at 12 m.

The trains of the Troy and Greenbush railroad connect with all the above trains at Greenbush.

Fare from Boston to Albany, $5; fare from Springfield to Boston or Albany, $2 75.

Boston and New York, via Springfield: Passengers leaving Boston at 4 p. m., arrive in Springfield at 8 p. m., proceed directly to Hartford and New Haven, and thence by steamers to New York, arriving at 5 o'clock a. m.

For Buffalo: the trains for Buffalo leave Albany at 7½ a. m. and 7 p. m., arriving at Buffalo at 8 a. m. and 8 p. m. next day. Returning, arrive at Albany at 4 a. m. and 4 p. m.

New York and Boston, via Albany: the trains from Boston arrive at Albany in season for the 7 o'clock boats to New York. Returning, the boats, leaving New York at 5 and 7 p. m., reach Albany at 5 a. m., in ample season for the morning trains to Boston.—Steamboats also leave Albany at 7 a. m. and 5 p. m. and stop at the usual landing landing plrces upon the river.

The trains of the Springfield, Hartford and New Haven railroad, connect at Springfield, and passengers from Albany or Boston proceed directly on to Hartford and New Haven.

Montreal: through tickets to Montreal may be obtained in Boston, by which passengers may proceed to Troy, and thence by stage via Chester, Elizabeth, etc., and in the season of navigation by canal to Whitehall, and thence by the splendid steamers of Lake Champlain to St. John, via Burlington, and thence by railroad and steamers to Montreal.

The trains of the Hudson and Berkshire railroad connect at Chatham and State Line.

The Housatonic railroad connects at State Line.

The trains of the Connecticut River railroad connect at Springfield, and passengers may proceed without delay to Northampton, and thence by stage to Greenfield, Brattleboro, Bellows Falls, Hanover, Haverhill, etc.

Stages leave West Brookfield for Ware, Endfield, New Baintree and Hardwick; also leave Palmer, for Three Rivers, Belchertown, Amherst, Ware and Monson; Pittsfield for North and South Adams, Williamstown, Lebanon Springs, etc.

Merchandize trains run daily (Sundays excepted) between Boston, Albany, Troy, Hudson, Northampton, Hartford, etc.

For further information apply to C. A. Read, agent, 27 State street, Boston, or to S. Witt, agent, Albany.

JAMES BARNES,
Superintent and Engineer.

Western Railroad Office,
Springfield, April 1, 1846. } 14 1y

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily,


at 5 o'clock a.m., and 2 p.m.


Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare $1·25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the


Great Western Mail leaves Baltimore every morning at 7½ and


Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry — with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours. Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

BALTIMORE AND SUSQUEHANNA Railroad. The Passenger train runs daily except Sunday, as follows:


Leaves Baltimore at 9 a.m., and


arrives at 6½ p.m. Arrives at York at 12½ p.m., and leaves for Columbia at 1½ p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York $2. Wrightsville $2 50, and Columbia $2 62½. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, $9 and $10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3½ p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.

Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following da- any passenger train.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in *eleven*, Petersburg in *thirteen and a half hours*, and Charleston, S. C., in *two days* from Baltimore.

Fare from Baltimore to Charleston.....$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the *Southern Ticket Office*, adjoining the *Washington Railroad Office*, Pratt street, Baltimore, to

1y14 STOCTON & FALLS, Agents.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., *Agents.*

Corner of Cedar and Greenwich Sts. 48 1y

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston,


on the arrival of the boats from Wilmington, N. C., in connection


with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....$26 50

Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, *Agent.*

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.


This Road in connection with the South Carolina Railroad and


Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenanla River, in Cass Co., Georgia.

Rates of Freight, and Passage from Augusta to Oothcaloga.

On Boxes of Hats, Bonnets, and Furniture per foot.....16 cts.
" Dry goods, shoes, saddlery, drugs, etc., per 100 lbs.....95 "
" Sugar, coffee, iron, hardware, etc.....65 "
" Flour, bacon, mill machinery, grindstones, etc.....33½ "
" Molasses, per hogshead $9·50; salt per bus.20 "
" Ploughs and cornshellers, each.....75 "

Passengers $10·50; children under 12 years of age half price.

Passengers to Atlanta, head of Ga. Railroad, $7.

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Oct. 21 1845 *44 1y

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.


This Road is open for the transportation of Passengers and


Freight. Rates of Passage, $8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons.....$5 00 per hhd.
On molasses and oil.....$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
40 Gen'l. Sup't. Transportation.

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

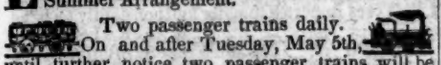
From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.
Atlanta, Georgia, April 16th, 1846. 1y17

LITTLE MIAMI RAILROAD.—1846.—Summer Arrangement.



Two passenger trains daily.

On and after Tuesday, May 5th, until further notice, two passenger trains will be run—leaving Cincinnati daily (Sundays excepted) at 9 a. m. and 1½ p. m. Returning, will leave Xenia at 5 o'clock 50 min. a. m., and 2 o'clock 40 min. p.m.

On Sundays, but one train will be run—leaving Cincinnati at 9, and Xenia at 5 50 min. a. m.

Both trains connect with Neil, Moore & Co.'s daily line of stages to Columbus, Zanesville, Wheeling, Cleveland, Sandusky City and Springfield.

Tickets may be procured at the depot on East Front street.

The company will not be responsible for baggage beyond fifty dollars in value, unless the same is returned to the conductor or agent, and freight paid at the rate of a passage for every $500 in value above that amount.

W. H. CLEMENT,
19 Superintendent.

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works beingextensive and the number of hands employed beinglarge, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a15 Paterson, N. J., or 60 Wall street, N. York.

GEORGE VAIL & CO., SPEEDWELL IRON Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1¾ in. to 2¼ in thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descripions.

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee.

G. A. NICOLLS,
ja45 *Reading, Pa.*

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of **20** years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers or fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
1y25 Philadelphia, Pa.

MARAMEC IRON WORKS FOR SALE. By Authority of a power of Attorney from Messrs. Massey and James, I will sell at Public Auction, at the Court House in the city of St. Louis, on *MONDAY, the 2nd day of November next*, the above named valuable IRON WORKS—together with **8,000** ACRES OF LAND, more or less, on which there are several *valuable and productive Farms* open and in cultivation.

The Maramec Iron Works are situated at the Maramec Big Spring, in Crawford Co., Mo., and consist of **1** BLAST FURNACE; **1** AIR FURNACE; **1** REFINING FORGE, with large Hammer for making Blooms and Anchonies;

2 CHEFFERY FORGES for Drawing Bar Iron;

1 ROLLING MILL for Rolling Blooms into Bars and Plates;

1 SAW AND **1** GRIST MILL,

All within 300 Yards of the head of the spring. There are 2 large frame Coal Houses, and all other Buildings necessary, such as Shops and Houses for the workmen.

This Spring is one of the largest in Missouri, discharging at the lowest time 7,000 cubic feet of water per minute. The Ore Bank from which the Ore has been heretofore taken is about 600 yards from the furnace; it is the *Specular Iron Ore*, the best for making Bar Iron, and the quantity inexhaustible.—It is an Iron Mountain, 400 feet above the level of the Maramec River; the ore is entirely uncovered, and there is an easy descent and a good road from it to the furnace.

The lands have been carefully selected by one of the owners with a view to the interest and convenience of the Works, and are situated principally on the Maramec River and its tributaries, embracing the best bottom lands and water powers. The following detatched tracts, comprized in the above quantity, were selected for the advantages they possess;

183¼ ACRES in T. 40 N. of R. 8 W. in Sec. 3, near Wherry's Mill, in Osage Co.; entered to secure a very valuable Mill power on the Branca Spring and a good landing on the Gasconade River.

80 ACRES on Benton's Creek, 12 miles from the Works; entered to secure an extensive and valuable Ore Bank 2½ miles from the Maramec, at a point where there is ample water power.

320 ACRES in T. 38 N. of R. 4 W. in Sec. 22 and 28, affording an extensive and valuable water power on the Maramec river.

160 ACRES in T. 37 N. of R. 3 W. in Sec. 4, embraces two inexhaustible and valuable Ore Banks and is 1¼ miles from Water power sufficient for a furnace and Grist Mill, and is distant 6 miles from the above site on the Maramec.

80 ACRES in T. 37 N. of R. 8 W. in Sec. 33, including an extensive bank of excellent Ore, and distant 1¼ miles from water power on the waters of the Gasconade River, in Pulaski Co., sufficient for Furnace and Mills. All those Banks are of the same kind as the one at the Works, and deemed inexhaustible.

1 LOT, containing nearly one Acre, on the South Bank of the Missouri River, 4 Miles above the town of Hermann, purchased for a warehouse and landing, and is one of the best landings on the River.

The lands above described are well timbered, and have been selected with a view to have an ample supply of wood and coal, for fences, building and other purposes. There are on the land valuable quarries of Limestone well adapted for Fluxes for the Ore, and also good quarries of Rock suitable for building. There are also on the land a great number the finest kind of Springs. A large portion of the lands are bottoms well adapted to the production of Corn and other crops. The Works are situated in a very pleasant and healthful part of the country. The Maramec ore is believed to be admirably adapted to the manufacture of steel.

A further description of the property at this time is considered unnecessary, as those wishing to purchase will no doubt view the property, which will be shown by the Agent, residing at the works.

The terms of payment required will be one-third of the purchase money in hand and the balance in three equal annual payments, secured by mortgage on all the property.

A more particular description of the property will be given, and further conditions of the sale made known, on the day of sale.

JNO. F. ARMSTRONG, Agent.
St. Louis, June 6, 1846.

☞ The Louisville, (Ky.,) Journal, Cincinnati Gazette, Tribune (Portsmouth, O.,) Nashville Whig, Pittsburg Gazette, National Intelligencer, United States Gazette, (Phila.) Railroad Journal (N. Y.,) acd Boston Atlas, will publish the above once a week until the 20th day of October next, and send bills to this office for settlement, and *mark price on first paper.* 18t25

THE SUBSCRIBERS, AGENTS FOR the sale of

Codorus,
Glendon,
Spring Mill and
Valley,

} Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] *Philadelphia, Pa.*

TO RAILROAD COMPANIES AND MANufacturers of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE,
ja45 N. E. cor. 12th and Market sts., Philad., Pa.

KEARNEY FIRE BRICK. F. W. BRINLEY, Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire,
Peter Cooper,
Murdock, Leavirt & Co.
} New York.

J. Triplett & Son, Richmond, Va.

J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr.
Colwell & Co.
} Philadelphia, Pa.

J. M. L. & W. H. Scovill, Waterbury, Con.

N. E. Screw Co.
Eagle Screw Co.
} Provicence, R. I.

William Parker, Supt. Bost. and Worc. R. R.

New Jersey Malleable Iron Co., Newark, N. J.

Gardiner, Harrison & Co. Newark, N. J.

25,000 to 30,000 made weekly. 35 1y

Mathematics as a Branch of Professional Study.

(Continued from page 390.)

Geometry Studied as a Rational Science.

We shall now presume that the reader is prepared to enter upon a course of *geometrical investigation*, in the strict sense of the term; and though possibly in some respects, other works (on the same *model*, however,) besides that of Euclid, might be with advantage consulted, yet we know of no one, not even that of Legendre, which, taken as a whole, would be so safe a guide to him.

There can be no doubt that some degree of familiarity with the terms, and with the visual appearances of the figures of geometry, which every one whom we now address possesses, will place our student in a more advantageous position for the commencement of a course of rational geometry, than if he were entirely ignorant of them. In fact, in ordinary courses of general instruction, the greatest difficulty of which we have heard teachers of mathematics complain, is, the inadequate knowledge of the ordinary terms of geometry, which is furnished from the preliminary books in use for children—nay, in most cases, the *erroneous* notions which such books convey to the young mind. Condsiderable time is thus lost in acquiring correct notions of the very objects with which geometry is conversant, in all general schools; as these are only collected by repeated efforts of the mind, and after considerable recapitulation on the part of the teacher. All this inconvenience is escaped by the preliminary mechanical practice in geometrical construction, and by the suggestions which that practice inevitably forces upon the mind. Neither architecture or engineering are professions selected by young men of inferior capacity: we abate, of course, the railway mania of the past year. On the contrary, they are selected rather for the taste and talent which they are calculated to open an opportunity for cultivating with distinguished success. We assume, and we consider that we assume it on good grounds, that the profession is stocked with students whose talents considerably exceed the average amount of that which exists in the middle classes of society. We have made our appeal to them; and we feel convinced that they will pay that deference to the long experience and observation which has dictated our present series of notes, so far as to give our proposed course of study a fair trial. All we ask of them is, that they shall hold abeyance for a few short weeks of study those notions which their reflections upon the mere mechanical practice of geometrical construction, as regards *proof*, has tended to produce. We feel an entire confidence that, if this condition be complied with, that abeyance will terminate in something akin to self-reproach for the absurd imaginations of former days.

The student's first business must be to acquire a clear view of the conditions which essentially constitute a *perfect argument*, or in technical language, the *categorical syllogism*. We are happy in being able to avoid entering into any details concerning the formal logic, by referring the student at once to Prof. De Morgan's tract, entitled, "Frst Notions of Logic;" in which the fundamental principles of the "art of reasoning" are laid down with much clearness and precision, and with direct reference to the use of logic in the exact sciences.

The general object of geometrical reasoning is to compare two magnitudes, or two ratios, with each other, by means of some third magnitude of the same species, to which each of them has a known, a given, or a determinable relation. The comparison is simply as to equality or inequality, double or half, etc The general term *agreement* in formal logic is, in its mathematical application, reduced simply to *equality*, and *disagreement* to *inequality;* and nearly all the quibbles of the scholastic ages, which tended to bring the Aristotelian logic into contempt, have turned upon the substitution of verbal agreement for agreement in fact and essence. Under the simple forms of geometrical reasoning these quibbles found no place; and we would strenuously urge that the student should no further "dabble in the mysteries of the Oxford logic," than as it strictly applies in geometry.

We quote, however, one brief passage from Pott's Euclid, page 46–7—a work to which we have already referred in a review a few weeks ago.

(*a.*) "Every *syllogism* consists of three propositions, of which two are called the *premises*, and the third the *conclusion*.

(*b.*) "These propositions [among them] contain three items [each proposition containing two items] the *subject* and *predicate of the conlusion*, and the *middle* term which connects the predicate and conclusion together.

(*c.*) "The subject of the conclusion is called the *minor*, and the predicate of the conclusion is called the *major term*, of the syllogism.

(*d.*) "The major term appears in one premis, and the minor term in the other, with the middle term which is in both premises.

(*e.*) "That premis which contains the middle term and major term, is called the *major premis;* and that which contains the middle term and minor term, is called the *minor premis* of the syllogism.

(*f.*) "As an example we may take the first syllogism in the demonstration of prop. 1, book I, wherein it will be seen that the middle term is the subject of the major primis and the predicate of the minor.

"*Major premis.*—Because the straight line AB is equal to the straight line AC.

"*Minor premis*—and because the straight line BC is equal to the straight line AB.

"*Conclusion*—therefore the straight line BC is equal to the straight line AC.

(*g.*) "Here BC is the *subject*, and AC the *predicate* of the CONCLUSION; BC is the *subject*, and AB the *predicate* of the MINOR PREMIS; AB is the *subject*, and AC the *predicate* of the MAJOR PREMIS:

(*h.*) "Also AC is the *major term*, BC the *minor term*, and AB the *middle term*."

We do by no means insist upon the *absolute necessity* of "getting up" even this amount of formal logic, in the terms which are here employed; yet as a clear conception of the formal and essential reasonings of pure geometry is greatly facilitated by means of it, we urge its adoption as a matter of ultimate advantage, since this will confer *precision* upon their reasonings. To the student who can seize the *spirit* of geometrical investigation this will be unnecessary; and we know that many of our most able self-educated geometers have never taken the trouble to formally analyze and classify the parts of which a demonstration is composed—they perceiving,as it were intuitively,the cases where the syllogism is imperfect or inconclusive. Yet, though some confident boys may "dash out," and swim with a facility approachtng to instinctive, the great majority of our species must commence with the "nautilus," "the bladders," or "the corks," or else be doomed to a progress so slow in their aquatic feats, as to disgust or dishearten them with the attempt. So it is in respect of mind.

In all cases, however, it must be kept in view that every geometrical truth is deduced by a comparison between two others, which agree, one in one particular part, and the other in another, with the conclusion so deduced. One of these *may be* (and in one step of every demonstration *must be*) the hypothesis admitted of the existence of the figure spoken of; the other must be some previously acknowledged, or admitted or demonstrated truth. From this cause there must be certain *first truths* (one at least) *admitted*, as independent of all formal reasoning. This gives rise to the AXIOMS; which, however, beyond the more "common notions" which constitute Euclid's first seven, and his ninth, have been reduced by the Greek geometers to the smallest possible number. Attempts, indeed, have been often made to repose the superstructure of geometry on *definitions alone;* and to effect this the eighth and tenth of Euclid's axioms have been treated as disguised definitions of *equality* and of the *straight line*—while almost as many essays have been made to give a demonstration of the twelfth axiom as to "square the circle," or "double the cube." For men of learned leisure, such amusements may be very suitable; with us "practical men," they would be preposterous trifling. We have to act as well as to think; and all our thoughts must be given to the most efficient modes of acting. Moreover, while all ingenious speculation of this kind has signally failed in either simplifying the principles, or rendering the reasoning more concise, we may safely take the "Elements," though composed more than two thousand years ago, as our guide in geometry, without the slightest fear as to the result.

Another source of difficulty often felt is the definitions of the point, line and plane, as given by Euclid, and to which we have before alluded. Let us make a passing remark upon this.

The Greeks had no "classic language" from which to borrow their scientific terms. They took the ordinary terms of their language, which generally signified something more than they wished to express, or more than it was convenient to them to mean by

those terms. The *forms* of their definitions were therefore, in many cases, *merely restrictive* from the general idea which was attached to the words of the accidental qualities which did not enter into the geometrical conception then under view. This *negative* form of definition, therefore, in respect of familiar terms, greatly prevailed over the *descriptive* form of definition; and we have found ourselves in exactly the same predicament respecting many of the terms which we have *translated* instead of having *adopted as technicals.* For instance, the word *lonia* (which has, as its perfect Latin, the word *angulus,*) signifies the *corner of anything*, as of a room, or of a field; but in order *fully* to restrict the term to its geometrical sense, Euclid excludes all other considerations by limiting it to signify the *inclination* of two lines to one another —or the "opening between them," as it is sometimes familiarly expressed among ourselves.

It is just thus with respect to the definitions of space itself. We acquire, by the use of our organs of sensation, (sight and touch) the conception of magnitude. In magnitudes actually seen or actually felt we really become conversant only with surface. The idea of volume, or space of three dimensions, is, in truth, the result of inference made by ourselves; but so inevitably is this inference made, that our mines are more intensely impressed with this idea of figured space, than with any more abstract one, even than with the ideas from which the inference was itself made. This probably arises in a degree from the added suggestions of the sensible qualities of the matter which occupy space; but it is of no importance, on this occasion, to pursue the investigation of such a question further.

It is sufficient for us to remark, that however the idea of space may be gained we have yet the power of abstracting our thoughts from one set of its qualities, and of confining our attention to any other of its qualities.—It is thus that we can think of, and reason concerning, length without breadth, and of both without thickness, and of position without either length, breadth or thickness. We do not in such cases allege that there can actually exist in a *sensible condition* a surface which is not the surface of some body, or a line which is not the boundary of some surface, or a point which is not the extremity of some line; nor do we allege that the surfaces, lines or points which we exhibit to the senses *for the purposes of illustration*, are really free from the other qualities of magnitude. We merely restrict our meaning, by those definitions, to be such as we describe; and to the ideas so restricted our reasonings and their conclusions alone apply. Nor, after all, is this peculiar to science; for it perpetually, and almost as perpetually, occurs in our ordinary descriptions of things. When we speak of the height of a man, or of a column, we quite as completely leave out of our thoughts the corpulency of the man, or the diameter of the column, as we drop the consideration of the breadth of a line in pure geometry.*

The only subject in relation to first principles yet to be spoken of, is the system of postulations. These, instead of describing the ruler and compasses, and the uses which may be made of them singly and successively, or in combination, merely state, that the special problems soluble by means of them, (or indeed by any means) which we shall be required to use, are three. These are, to draw a line through two given points; to prolong a given line; and to describe a circle having any given centre and any given radius. The same principle runs through this system as through the system of definitions, viz: the abstraction of the mind from all considerations beyond that of the particular use to which we may apply those instruments. Euclid also employs the smallest possible number of these postulates; which, in some case does indeed add slightly to the complexity of a construction and its demonstration. Unfortunately, too, this is felt in the very outset; for the addition which it makes in the second and third propositions is greater than occurs in any future case throughout the entire elements. By this, however, is avoided the use of a fourth axiom, such as—let it be granted, that from a given point in a given straight line, a part may be cut off which is equal to a given straight line. In fact, instead of constructing and proving the construction of the third proposition, assuming it as a thing which can be done. As the student proceeds, however, he will see the systematic advantage that results from the greatest possible reduction in the number of our first principles, whether constructive or demonstrative, much more clearly than any statement of ours could render them at present to his mind.

A few remarks on the "indirect proof," as it is called, or speaking (technically) the *reductio ad absurdam*, appears to us to be necessary; as well as on one or two other collateral topics. We hope to be able to dispose of these points in our next number; after which we shall devote a few pages to the exposition of our views of the classes of geometrical subjects which have the most direct reference to professional utility.

To be continued.

St. Lawrence and Atlantic Railway.

We had thought that the St. Lawrence and Atlantic railroad co. had been fully organized, and commenced operations; from the following account of the proceedings of the English stockholders, this seems to be far from true. The Atlantic and St. Lawrence co., which is to build the portion of the road lying within the United States, has certainly commenced operations, but how far this refusal will effect them we cannot say. Can any one give us information?

A meeting of scripholders in this undertaking was held on Monday last, at the George and Vulture tavern, Cornhill, for the purpose of considering the expediency of adopting measures to obtain a return of the deposits; Mr. Aggis in the chair.

Previous to the commencement of the business of the meeting, Mr. Bishop, of the firm of Bishop and Coxe, the English solicitors of the company, begged to state that he attended the meeting, not as a scripholder, but as the solicitor of the company, both for the purpose of affording to the gentlemen any information in his power, and of ascertaining what resolutions the meeting might come to, and duly reporting the same to the committee in Canada.

The chairman then said, the meeting had been called in consequence of a correspondence he had recently had in connection with the affairs of this company. The correspondence was in itself very short, and if the meeting desired it, he should be happy to read it; but since the time of those present was valuable, perhaps it would be better to detail only the substance of that correspondence. There being no prospect of the undertaking being carried out by the payment up of the requisite capital, he had written to the directors in London recommending a dissolution of the company, the winding up of its affairs, and a return of the deposits. To this communication he had received a reply that the directors had no power to return the deposits, except with the concurrence of the directors in Canada. The capital originally contemplated by the co. was 500,000*l.*, which it was propased to raise by an issue of 10,000 shares in England and 2,000 in Canada, which amount was afterwards altered to 7,000 in England and 5,000 in Canada. All these shares, as he understood, were allotted when there was a railway fever in the money market; but notwithstanding, out of the whole, only 2,633 were paid upon—leaving 4,367 not responded to. From a report of the directors on the 6th January last, it appeared that 2,367 shares had been subscribed for in Canada, but how many of these had been paid upon was not stated, as the deposits were represented as being only in course of payment; but by the latest accounts, it appeared that the deed had been signed by English holders for only 530 shares. By another report of December last, the directors assured the public that their confidence in the undertaking was strengthened, and again, "that they had every reason to be gratified with the prospects of the company's affairs." Now, in the opinion of the majority of the English holders, there was no prospect of any further number of shares being taken up, nor was there even any disposition to pay a second call on those which had already been taken up; and therefore they desired to receive back their deposits. The proceedings of the present meeting would be very simple. He believed all the scripholders were of one mind; at any rate, out of 530 shares held by those who had signed the deed, the holders of 365 were anxious that the affairs of the company should be wound up.

A gentleman present asked Mr. Bishop whether he could inform them how many shares were held by the directors.

Mr. Bishop said he was not able to reply to that question, but not one of the provisional committee in England had signed the deed

* Take perhaps a still better illustration, which we quote from notes of a lecture delivered at our *alma mater* by the celebrated Playfair. "You have all heard, gentlemen, I dare say, how many miles it is to London; but has it ever occurred to any of you to ask *how broad* they are?

--yet the directors generally were interested collaterally to a very great extent in the company. They were also united with the British American land company, which company held a large interest in the present railway undertaking. Perhaps it would be satisfactory if he were to state a few particulars bearing on the object of the present meeting. So early as December he had received an application from a large holder of shares in the company, urging a return of the deposit money; and in consequence of that application, a case was drawn up and submitted for the opinion of the solicitor general and Mr. Crompton, and these gentlemen were decidedly of opinion that the provisional committee here had no authority or power to return the deposits, and that in fact they were acting strictly and simply as the agents of the board in Canada; in fact, they were acting under a power of attorney. He, Mr. Bishop, had had a correspondence with the Canadian board on the subject. He thought he need scarcely read that correspondence, but wished the meeting to understand that he had made every representation—a very strong representation indeed—of the altered state of the money market in England, and of the improbability of any further shares being taken up in this country. In a letter which he had received, he was informed that the total number of shares taken up exceeded 6,126. As far as the question before the meeting was concerned, he believed that it was impossible for the directors in England to comply with the wishes expressed in the advertisement. He might state, for the satisfaction of the English holders, that the money raised in England was safe in England, and that it was the intention of the directors here to hold it safe. (Hear, hear.)

The chairman would like to know what number of shares was paid upon in Canada. By the terms of the act of incorporation, it was provided that, if a given number of shares were not paid upon by a certain time, the act should die a natural death. The prospectus was issued in June last, and it was therein stated that 2000 shares had been subscribed for in Canada; and it had since been stated that on the 6th January last 2367 shares had been subscribed for—only 367 shares between June and January. But just as the term expired, they found Canada taking up shares just to save the powers of the act. He assumed that there was no chance of the capital being raised in Canada.

Mr. Bishop thought the chairman would be very wrong in assuming any such thing. From a private letter which he had received from Mr. Galt, who had just returned from the States, he received a very different account of the prospects of the company.

The chairman remarked that the expenses if spread over the English shares, would amount to 6s. a share; but if over 7000 shares, would only amount to 2s. 6d. a share. It appeared that a very large number of shares had been cancelled, which was an injustice to the holders who had paid up; but even new the scripholders would be glad to receive back their deposits, minus the expenses. It was true the expenses were small.

Mr. Bishop thought the expenses were so small, that if the parties would put themselves in the first place in "a legal position," the payment of those expenses would form no serious question.

The subject of the propriety of the cancelling of the shares was then renewed. It was also further objected, that the question of the simple agency of the provisional committee in England was not put fairly in the prospectus of the company. It was true that Mr. Galt was therein represented as the agent of the Canadian board, but the form of the application for shares was addressed to the "provisional committee." The public naturally considered they were dealing with provisional committeemen, having a joint authority, and not acting as attorney or agents only. After some short discussion, on the merits of the line, which it was obviously too late to discuss,

Mr. Bishop advised the scripholders, as the best and only course which they could adopt, to send out their proxy papers to Canada, if they desired to have an influence with the board. Whatever resolutions the present meeting might come to, he should be perfectly ready to transmit to Canada, together with any representations they might consider desirable, to make; and he might here state the willingness of the English board of directors to carry out the wishes of the English proprietary.

A resolution was at length come to that the directors were bound to return the deposits on the English portion of the shares.

The meeting then separated.

Steam and Romance.—Wherever the steamboat touches the shore adventure retreats into the interior, and what is called romance vanishes. It won't bear the vulgar gaze; or rather, the light of common day puts it out, and it is only in the dark that it shines at all.—There is no cursing and insulting of Giaours now. If a cockney looks or behaves in a particular rediculous way, the little Turks come out and laugh at him. A Londoner is no longer spittoon for true believers: and now that dark Hassan sits in a divan and drinks champagne, and Selim has a French watch, and Zuleikha perhaps takes Morrison's pills, Byronism becomes absurd instead of sublime, and is only a foolish expression of cockney wonder. They still occasionly beat a man for going into a mosque, but this is almost the only sign of ferocious vitality left in the Turk of the Mediterranean coast, strangers may enter scores of mosques without molestation. The paddle wheel is the great conqueror. Wherever the captain cries "stop her!" civilization stops and lands in the ship's boat, and makes a permanent acquaintance with the savages on shore. Whole hosts of crusaders have passed and died, and butchered here in vain. But to manufacture European iron into pikes and helmets was a waste of metal: in the shape of piston-rods and furnace pokers it is irresistible; and I think an allegory might be made showing how much stronger commerce is than chivalry, and finishing with a grand image of Mahomet's crescent being extinguished in Fulton's boiler.—*Titmarsh's Cairo.*

Miscellaneous Items.

Harlem Railroad.—This company has at last adopted the plan of commutation to White Plains, with a view to build up a permanent population along the whole line of the road. The experience of the English, but more especially of our eastern roads, proves conclusively the advantage of that system, and of the policy of low fares. We learn that the charge to White Plains is $90 per annum, though somewhat more in proportion for part of the year, and for places this side. New facilities of access to a fine region of country for a residence during the summer, are thus opened to our citizens.—*Jour. Com.*

Mohawk and Hudson Railroad.—The receipts of the Mohawk and Hudson railroad continue to show an increase over any year since 1841. Since 1844 the gain has been considerable, and uniform. The earnings for the week ending 21st June were:

Passengers, - - - - -	$2,008 13
Freight, - - - - -	121 28
Total, - - - - -	$2,129 41
Same week last year, - - -	1,803 66
Increase in 1846, - - - -	225 75

The wharves of Philadelphia have seldom been so densely crowded with vessels as during the past week.

Boston and Worcester Railroad.—The receipts of income of the Boston and Worcester railroad in the six months ending May 31, amounted to $247,785. The directors have ordered a dividend of 4 per cent., payable July 1.

The earnings of the Concord railroad, for the last year were $228,000—being $46,000 more than the year before. The expenses were $135,000 and the net earnings $93,000 giving a dividend of 12 per cent. upon a capital of $800,000. We see it stated that the iron for its second track is being procured from the Mount Savage iron works in Maryland, and that it is considered superior to the English.

Vermont and Massachusetts Railroad.—We learn that a contract has been made by the directors of this corporation for iron sufficient to lay 14 miles of their track, between Fitchburgh and Athol, at the low rate of $76 1-2 per ton.—*Boston Post.*

2,500 laborers are at work on the line of the Vermont Central railroad, and 1,000 more are wanted. The Boston Courier says the entire road from Windsor to Burlington will be completed in less than two years.

Central Railroad.—The receipts of this road for the month of May, 1846, are as follows:

For freight, - -	$18,572 42	
From passengers -	14,346 42	$32,918 85
Received in the corresponding May, 1845:		
For freight, - -	$6,736 00	
From passengers, -	8,888 55	$15,624 55
This road has received since last report (December 1st, 1845, to May 31st, 1846,) - - -		131,979 41
Amount received in the corresponding time, ending May 31st, 1845, - - - - -		56,552 24

Our railroad still continues to speak for it-

self. The receipts of the last month are more than double those in the corresponding month last year! Will our Boston friends look at this statement?—*Detroit Adv.*

The Railroad.—We are requested to say that a meeting of the Nashville and Chattanooga railroad commissioners will be held on Saturday evening next, at 4 o'clock, P. M.—The members of the board are specially desired to be in attendance.

It gives us pleasure to state that Mr. Stevenson has returned from his visit to Georgia and South Carolina, having succeeded in procuring the services of Mr. Thompson, an engineer of high character, in the proposed survey of the route. Mr. Thompson has been engaged for many years in constructing railroads in the south, and is in every respect qualified to make a reliable survey and estimate. We understand that he is now on his way to Nashville, making a horseback examination of the country, preparatory to entering regularly on the work. He is expected to reach Nashville in a few days.

Mr. Stevenson informs us that the Western and Atlantic road has been put under contract to Cross Plains, which is within 25 miles of Chattanooga, and that the road will be completed to that point during the present year. This insures the construction of the road to the Tennessee river at Chattanooga and makes it important that the work from Nashville to Chattanooga should be prosecuted with vigor. The people in Georgia and South Carolina feel a lively interest in our enterprize, and will be found co-operating in the proper spirit.—*Nashville Union.*

Erie Canal and Western Railroad.—The great state work of Massachusetts has frequently been compared to that of New York state, as a means of developing the resources and improving the property of the commonwealth. The analogy of the receipts in the two cases for the first five years, is rather impressive:

Erie Canal.		Erie Canal.		Western Railroad.
1825..	$566,000	...1842..	$1,743,000	...1842..$512,688
1826..	793,000	...1843..	2,087,000	...1843.. 573,881
1827..	860,500	...1844..	2,432,000	...1844.. 753,752
1828..	838,000	...1845..	2,620,000	...1845.. 913,478
1829..	818,000	.....	.....	...1846..*976,000

Canal Tolls.—The amount received for tolls on all the New York state canals, during the third week in June, is, - - $88,547
Same period in 1845, - - - 63,222

Difference, - - - - - $25,325

The aggregate amount received for tolls from the commencement of navigation to the third week in June inclusive, is $859,393
Same period in 1845, - - 799,261

Difference, - - - - $60,132

The receipts during the month of April of the present year, compared with 1845, show a diminution of $80,871, and from the 1st of May to the third week in June, compared with the same period of the past year, show an excess of $141,002, the average increase being over $20,000 per week.—*Albany, Evening, Journal.*

Canal Tolls.—We have procured from the canal department, a statement of the tolls collected on the canals of the state to the 14th June in each of the years 1845 and 1846.—They are as follows:—*Albany Argus.*

	1845.	1846.	increase.	decrease.
April 3d week..	$146,235	$113,713		$32,522
" 4th " ..	114,614	66,265		48,349
May 1st " ..	85,988	97,511	$11,523	
" 2d " ..	79,730	100,184	20,454	
" 3d " ..	89,276	105,070	15,794	
" 4th " ..	92,220	116,016	23,796	
June 1st " ..	65,209	88,556	23,347	
" 2d " ..	62,767	83,530	20,763	
	$736,039	$770,845	$115,677	$80,871
		736,039	80,671	
Increase in 1846.....		$34,806	$34,806	

* The increase on the Western road thus far, in 1846, is over 20 per cent., giving $70,000 for the first six months, and being at the rate of $163,000 for the year, making the total, as above $976,000. The expenses to the present time have not increased.—*Boston Courier.*

First Cast Iron in Michigan.—A correspondent of the Jackson Patriot, writing from Union city, under date of June 4, says that the first cast iron ever manufactured in Michigan, was made at the Union furnace lately erected in Union city, on the Friday preceding. The company it is said, are now casting from two to three tons pig iron per day, and the iron is believed by judges to be of excellent quality, and the ore, the product of that state, abundant.

Another large iron iron furnace has been erected at Danville, in this state, by Sam'l R. Wood, Esq., and it was blown in on the 11th inst., by Mr. Jas. Ralston. The furnace is located at Red Point, on the North Branch canal, about three miles below Danville, and it is said to be constructed in the most approved manner, with 15 feet boshes, and will produce from 100 to 120 tons of pig iron every week.

The Frederick Herald says—

We learn that the wealthy and enterprising proprietors of "THE FALL RIVER IRON WORKS," Massachusetts, are about to transfer a portion of their wealth and enterprize within the borders of our own state, they having, as we learn, recently purchased a large and valuable property near Frostburg, Allegheny co., where they contemplate extensive mining operations forthwith.

The same individuals, or company, we were informed when racently in the District of Columbia, had also purchased a valuable site and water power on the canal in Georgetown intending there to erect extensive works *for the manufacture of iron* in some of its branches.

Copper Boat.—At the national fair there is a specimen of a copper boat from the Novelty works at New York. This boat is 23 feet long, 5 feet wide, and made of four sheets of copper, stamped in 40 minutes to its present shape by powerful machinery. It is impossible for any number of persons to sink her—her strength is four-fold greater than wood boats. It requires one-third less power to propel to the same speed as wood. The copper after any number of years' wear, will sell for three-fourths the first cost. The weight is one-third less than wood, and the water is not absorbed—no caulking, trenailing, or painting is needed.—Gigs, cutters, barges, quarter, race, row, club, and ducking boats, from 10 feet to 60 feet, made of copper or iron, without seams; they are made in four pieces. The strength has been fully tested by dashing them on the rocks, and running against stone piers. They cannot leak or sink.

Paris correspondence of the Boston Atlas.

The railway from Paris to Belgium is to be inaugurated on the 14th June, with great pomp. A large party of invited guests will leave Paris in the morning, breakfast at Amiens, dine at Lille, and return in the evening, if necessary. Those who have more time at their disposal, will proceed the next day to Brussels, where an entertainment will be provided by the city. The railway from Paris to Sceaux is to be opened on Wednesday next.

Great Capacity of Railroads for Business.—The Reading railroad, which is 92 miles in length, transported in the year 1845, 800,000 tons of coal; and in the single month of July last, 104,000 tons. The business for the year 1846 is estimated at 1,220,000 tons, which is equivalent to 7,500,000 bales of cotton, more than three times the entire crop of the United States. If a like amount of up freight is performed, and which might have been done, as the cars returned empty—we have an example of a railroad nearly 100 miles in length, capable of doing a transportation within the year, equivalent in weight to 6 times the cotton crop of the United States, or 12,000,000 of bales—and which would be equal to 5,000 ships of 500 tons each, performing two voyages to Europe.

This business on the Reading road was performed at the rate of 1 cent per ton per mile, or $1 for 100 miles—one-half of which is shown to be profit. At the same freight, a bale of cotton may be brought from the Tennessee valley, north Alabama, at 50 cents a bale. Who can with this exhibit, doubt the capacity of railways competing successfully with river navigation, or the ability to transport, at remunerating prices, western produce to our south Atlantic markets. Enterprize and confidence is all that is necessary; and if our southern cities, with all the lights before them, are resolved to remain in slumbering inactivity, others acting up to the spirit of the age, will enjoy the harvest.—*Charleston Mer.*

Lexington Railroad.—The grading of this road is nearly completed, and every thing is now ready for laying the rails. In fact, a large portion of the road has been ready for the iron for some weeks.—*Bunker Hill Aurora.*

Macon and Western Railroad.—The Macon (Ga.) Advertiser of the 15th inst., says—"We learn that this road is nearly completed to Forsyth, and it is in contemplation to run the 'Ker Boyce,' (a new car which arrived here a few days since from Savannah,) from this city to Griffin, on the 4th of July next. Several other cars for this road have recently arrived at Savannah from the north; and the freight cars are being constructed here with dispatch. We also understand that this road will be completed to Atlanta about the 1st of September, or sooner if possible, in order to secure the fall trade and travel. Success to the enterprize."

We announced on Saturday, that by the recent action of the Connecticut legislature, the route for the New York and Boston railroad is completed, so far as legislation is concerned, from the city of New York to the Rhode Island line, within fifteen miles of Woonsocket. We are informed that the advocates of said route have adopted the Pettee route, from Woonsocket to Boston, as the Massachusetts section of their line.—*Boston Atlas.*

The Cumberland Civilian says that the Chesapeake and Ohio canal company have obtained funds sufficient to complete their work, and that operations will be speedily resumed on the entire length of the unfinished portion.

Dvidend.—The Paterson and Hudson river railroad company have declared a dividend of three and a half per cent. for the last six months, payable on the 1st of July.

Western Railroad.—The receipts of last week, being the first under the new arrangement of the trains exhibited a gain of $7,000 over the corresponding week in 1845, being within a thousand dollars of the largest amount in any one week since the opening of the road, viz: in August, 1844, the week of the great whig convention at Springfield.—*Springfield Gazette.*

The Ogdensburg Railroad.—At a meeting of the directors of the Ogdensburg railroad, held in this city on Tuesday, Col. Chas. L. Schlatter was chosen chief engineer. Col. Schlatter was for several years chief engineer of the state of Pennsylvania.—*Boston Adv.*

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

PRINCIPAL CONTENTS.

AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N.Y.

Saturday, July 4, 1846.

THE RAILROAD JOURNAL will hereafter be published *simultaneously* in NEW YORK and PHILADELPHIA. The editorial department will as heretofore, be under thr direction of the subscriber, aided by his former associate Mr. George C. Schaeffer, and other gentlemen of ability connected with the profession—and renewed efforts will be made to render it *more* worthy of the rapidly increasing support which it is now receiving.

Engravings and illustrations will be more frequently given, and expensive maps will be occasionally prepared, showing the progress of the railway system, one of which, showing the proposed route of steam communication from China, across the isthmus, and through the United States, to England, by Edward McGeachy, Esq., of Jamaica, is now in the hands of the artist, and will be ready in a few weeks; and others will follow.

☞ The office in NEW YORK will remain for the present, at 23 Chambers street, and be in charge of Mr. Egbert Hedge, long connected with the work—who is authorized to transact business for me.

☞ The office in PHILADELPHIA will be at the FRANKLIN HOUSE, 105 Chestnut street, under the direction of the editor and proprietor, where all *letters* and *communications* by mail, and all *exchange papers* and *periodicals* may be hereafter addressed to

D. K. MINOR.

☞ The editor of the Railroad Journal presents his compliments to his numerous subscribers and friends and assures them that he will be always gratified to see them at his new office and home, the FRANKLIN HOUSE, late SANDERSON'S, 105 Chestnut street, Philadelphia. He will be found *at home*.

Taste in Depots and Railway Structures.

The rapid spread of the railway system—the *obtrusiveness* with which the railroad insinuates itself—into villages and cities—moving through, or by, church yards, public squares, gentlemen's country seats, etc.—renders it needful that some attention should be paid to the taste, or rather want of taste, displayed in many instances, in the most conspicuous situations which could have been chosen.

Now we hear some economical directors exclaim, "you want us to lay out money upon ornament, *gingerbread-work*, do you? we cannot afford it: we are not bound to make decent looking buildings: it is all nonsense to pretend to exhibit *taste* in railroads." We state the objection at once, because we know many will make it, and it is our object to show the absurdity of this very argument—if argument it can be called.

In the first place to disarm such opponents, we disclaim all desire for *gingerbread-work*, or even ornament, in the sense in which it is taken by some persons; and in the next place we advocate no extravagance or imprudent outlay of money. In architecture, as in other matters, good taste is never far from utility—nothing is in good taste, which whatever its abstract elegance may be, strikes the beholder with its want of fitness. The model of the Parthenon for a blacksmith shop—of a Gothic church for a car house—of the Pantheon for a machine shop—or even of the Lantern of Demosthenes for a water station, would be supremely ridiculous—and yet similar absurdities are not uncommon.

We contend that no railroad building is in good taste, that is manifestly unfit for the use for which it is intended—either by reason of improper materials or unsuitable form. Next we assert that every building which *is* evidently fit, both in form and materials, for the purpose intended, may with very little if any additional outlay, be made pre-eminently an object capable of giving pleasure to a person of cultivated taste.

Let us take, as an illustration of this, a machine shop, or engine house—a place begrimed with smoke and grease, with the least possible pretensions to beauty, yet a real temple of Vulcan. This building should not be constructed after the model of a church, for it is intended for other and totally different purposes—nor should it be quite like the Parthenon, as this would be an inconvenient form—neither should it be built of wood, for this would be an unsafe material—nor should it be painted white, nor any light color, for this would soon become soiled and dirty. The building should be of stone or brick, of sufficient height, with suitable outlets for smoke at top—the chimney should rise so far above the roof as to give a good draft—the door large, with curved or pointed outline at top—the moulding over them projecting to guard the ends of the wood from the weather—if opening outwards, for a similar reason, they might fit into a recess in the wall. The roof would require to project both at the eaves and gables to protect the wall from the effects of undue moisture. The bare stone or brick wall would be liable to injury; a coating of plaster or roughcast would prevent this, and the color should be rather sombre, so as not to soil too readily. We have already the elements of taste in the expression of fitness—let the proportions be good—the arches over the door graceful [and this costs nothing]—let the chimney rise from the roof in any one of the thousand forms now so commonly to be found, and with neat or rather severely simple mouldings, we have a building quite fit for the purpose intended, and by no means displeasing to the eye. Do we wish for ornament, let us add for upper windows, or air holes, a few wheels built into the wall—sheet iron doors, with rivets, etc.,—cast iron columns and an iron smoke stack for a chimney, etc,.—and behold a fair specimen of the Volcanic order.

Car houses, however, are the buildings generally selected to display the carpenter's skill in constructing unsightly and easily combustible *ornament*. It would consume too much time were we to enter into all the details belonging to their construction. It is enough to say that they should afford comfort to passengers, being easy of approach, affording room for the crowd at arrival and starting, protection from the weather and from hackmen, and guarded strictly against the possibility of accident to persons in and around the cars. The occurrence of fire should not only be prevented if possible, but means provided for immediate extinction. These are some of the more evident requirements, no provision for which could violate good taste. But the amount of ornament and the style of building allow of so much latitude, that it would be useless to insist upon any one plan, as thousands might be contrived, each having its peculiarities adapted to some particular case. It is here that something like architectural taste and skill are required.

The arrangement of depots is properly noticed under this head. The first requisite is neatness and cleanliness. Some depot yards which we have seen are not unfit theatres for the enactment of Dickens' scene of the ghosts of stage coaches, or rather railway cars. Old smoke stacks, broken wheels, burnt, smashed or discarded cars, heaps of cinders and oiled rags, fill up the larger space in such places. Decency at least forbids such displays, and the comfort of passengers is *not* to be neglected.

There are not wanting in the United States, we are happy to say, some excellent examples of what a depot and its buildings should be. In England, as far as we can judge from published designs, much taste is shown in such matters—but that there is room for improvement no one will doubt who has seen the gaudy buildings upon the ——— road, the dirty and ugly ones upon the ——— road, and the *no* buildings upon the ——— road.

☞ Our readers will remember the proposal of railway villages as a means of improving the condition of the poorer classes of the community, which we gave from an English journal, some time since. We find another article upon the same subject, which, although bearing more particular reference to the miserably poor of England, will yet give many hints worthy of attention in our own country.

If our lower classes are not so badly off as the poor wretches in the larger towns of England, they are at least as much disposed to get fresh air, and a country residence near enough to the city to obtain much of their support from labor in or near it—moreover they are far more able to pay; and the transit of large numbers at a very low price would be a much better operation in this country than in England, as far as profit is concerned.

Suburban railway villages, the best remedy for the evils of an overcrowded town population.—By P. Austin Nuttall, L. L. D.

The mighty changes which the railway system of this gr at empire is likely to produce in society, are daily becoming more evident. Its advantages, more especially to the industrious classes, are rapidly developing themselves. The powers of accelerated locomotion are not only largely promoting the general convenience and prosperity of trade, but, by the cheapness of fare, and the facilities of transit from one locality to another, are also extensively contributing to the enjoyment and healthy recreation of the toiling denizens of our great manufacturing towns. Yet, with all the disadvantages attendant on railway enterprize—the enlargement of towns—the prosperity of the inhabitants—the rapid conveyance of all the necessaries of life—and the ever-extending operations of social intercommunity—still it is exposed to fearful drawbacks, if not closely watched, and its operations wisely controlled or judiciously directed. Like every great public good, it has its bane; but fortunately that bane has its a.tidote, which the directing hand of the statesman, or he wisd om of the legislature may apply:

"The bane and antidote now lie before us."

It is the very nature of the railway system to increase the trade and commerce, and consequently the population of all our large towns, where the termini of various lines will be formed. The aggregated masses of the laboring community in the confined localities of towns, attended as they are by general depravity, disease and misery, has ever been considered the greatest bane of England's manufacturing prosperity; and unfortunately the evil has hitherto been left to itself, without any effective measures being ever attempted for obviating the nuis nce. Although the royal commission for inquiring into the sanatory condition of our populous towns has filled tremendous tomes with evidences of the melancholy facts, nothing effective has been done. The evils of over crowded population moreover, are likely to be increased by the operations and effects of the railway system, if the antidote, or panacea, be not timely administered. This antidote, to be effectual, must be the entire sweeping away of the filthy dens of poverty and crime with which our large towns are infested, and erecting streets or villages in the suburban districts through which the various converging railways run. By due economy in the erection of these villages, and the lowest fare which the company can afford, these residences may come within the scope of the laboring classes; and the sites previously occupied by their own miserable dwellings may be converted into agreeable and healthy localities. The subject is well worthy the consideration of the royal commission which has been just formed for taking into consideration the various metropolitan termini now in contemplation, and which the spirit of the times absolutely demands.

That the erection of these villages would be productive of remuneration to the respective companies is unquestionable. The principal difficulty is the expense which the laborer or artizan would incur by the cost of daily conveyance. To men engaged in business, or holding lucrative situations, the expenditure would be of little importance; but to a working man, receiving weekly wages, it might be a serious object. It would, however, be the business of the respective companies to compute the lowest cost at which they could convey a given number daily, and pro bably arrange with the passengers (supposing these railway villages were built by the companies themselves) to pay an additional rental on their tenements—say from £2 to £3 per annum, which, in addition to the rent, would not amount to more than the working man usually pays for his miserable apartments; and at the same time it would probably be sufficient to remunerate the company for their capital and outlay, on account of the regularity and certainty of the returns. Thus the presumed difficulties attending the expense incurred by the occupants of these suburban tenements in their daily journeys, would be found to be more imaginary than real.

It is satisfactory to learn, as some confirmation of the correctness of these views, that Mr. Wilkinson, the respected chairman of the Croydon railway company, with a spirit of benevolence which does honor to his feelings, has demonstrated the feasibility of the preceding plan. At a late meeting he strongly recommended it to the attention of the proprietors, and stated that a society had been formed for the purpose of affording the working classes the benefit of a suburban residence the promoters of which had made overtures to the board for the use of the Croydon railway, in order to carry their scheme into operation. It was their intention, said Mr. Wilkinson, to build villages at different points of the line for the residence of working men and their families; that the company should convey them at a moderate rate; and that an additional rent should be charged on the tenements, to be paid to the company, whether the trains or the houses were full or empty, or whether the inhabitants availed themselves of the line or not. Mr. Wilkinson, at the same time, expressed his opinion that the company would be able to carry these people as cheap as goods: that "they might carry live at as cheap a rate as inanimate lumber, viz: at 2d. per ton per mile, fifteen persons weighing about a ton." Thus it would appear that 100 persons, residing seven miles from London bridge, might each be conveyed to and fro daily, in less time than one-quarter of an hour, for 1d. each, being 6d. a week, or £1 6s. a year. This is a most astounding result, and is calculated to exhibit the triumph of railway enterprize in promoting the cause of civilization, and effecting the social regeneration of the human race.

The plan for erecting these suburban villages appears to have originated from an association forming by Mr. Moffatt, to be named "The National Philanthropic Investment Society." The proposed average rent of the houses is to be £10 per annum; and each house is to be provided with all the domestic conveniences redu ed for a family. Moreover, churches, chapels, cemetries, literary institutions, baths, gas and water companies, sewers, etc., are to be added for the use, instruction or amusement of the inhabitants. Ten villages are proposed to be built, each covering 500 acres of ground, and each containing 500 cottage residences, with 7 individuals to each cottage; so that each village will contain 3,500 inhabitants, the whole population amounting to 35,000. By this means we shall have the dense population of the metropolis relieved in that proportion.

But this measure, if found successful, must not be confined to the Croydon railway alone. There is no reason why it should not be extended to the various lines at present branching from the metropolis. In the rural and thinly populated localities bordering on the Southwestern, the Great Western, the Birmingham and the Eastern Counties, there is ample scope and opportunity for the erection of numerous villages, where all the comforts and conveniences of life, with a free and salubrious atmosphere, might be afforded at a reasonable price, to the arduous sons of toil in this densely crowded metropolis. Thus, through the agency of the six arterial railways, branching from London, would the fetid hovels and moral charnel houses of the industrious poor be relieved of upwards of 200,000 living souls, whose physical energies would be daily renovated by breathing a purer atmosphere, and whose moral feelings would not be debased by association with the vice, profligacy and misery with which this crowded city abounds.

No doubt there would be difficulties in some of the details; but perseverance and an ernest determination on the part of the managing directors of each line to do their utmost to promote the well-being of society, and conduce to the social improvement of the human family, would overcome every obstacle.

It is earnestly to be hoped that the royal commission, which has been appointed to take into consideration the metropolitan termini of the different converging lines, will devote some attention to this very important object; and that they may be called upon to act in unison with the commission for inquiring into the sanatory condition of our populous towns. A more glorious opportunity for improving the physical condition, and elevating the moral character of the laboring classes of the metropolis, never presented itself to the mind of the philanthropist or the wisdom of the statesman. Now is the fitting occasion, when extensive neighborhoods—the mere concentration of poverty, filth, misery, and disease—are about to be swept away, but which at present, instead of eradicating the foul social gangrene, is only calculated to render the unfortunate denizens still more wretched, by driving them into the overcrowded localities that remain; and this in truth is only adding to their wretchedness and misery.

We have now the opportunity for diffusing the concentrated masses of a debilitated and demoralized population over a great extension of district, and thus imparting health and

vigor to the animal frames of squalid myriads, and at the same time, by the powerful agency of steam and rapid locomotion, to concentrate a vastly extended circle of population into one common nucleus for all the purposes of business, commerce, or social intercourse.

It is not however, to the metropolis alone that our views ought to be confined. There are, at this time, many other great emporiums of commercial industry rising into importance and daily extending in magnitude, where the population are concentrated in masses, and present the most deplorable scenes of depravity and misery. What can be more horrible to contemplate than the wretched rookeries of filth and disease with which Liverpool, Manchester, Glasgow, and other large manufacturing towns abound? Their ever increasing population, without corresponding extension of boundaries, has naturally led to those lamentable results, which have been so forcibly depicted in the sanatory report of the parliamentary commission. All these first rate provincial towns will eventually form the great centres of railway lines; and if the plan suggested be carried out, the depravity and social miseries of a crowded population will be greatly alleviated, and that state of society which statisticians, especially of the Malthusian school, have viewed as the greatest curse, may be converted into the purest blessing.

Macon and Western Railroad.

"This important work, says the Macon Messenger of June 18th, is now nearly completed. It is confidently expected to commence running passenger cars on the 1st of July to Griffin, and by the 1st of August to Atlanta. One new locomotive for freight has arrived, which is of the largest and finest class; two others are in Savannah, and two more on their way. These with those already on hand, will make an ample motive power for the road. Two passenger cars, calculated for sixty passengers each, have arrived, and are on the track. They are of the most finished and splendid workmanship; and are said (by those qualified to judge) not surpassed by any in the United States. They better represent splendid parlors, hung with rich drapery and covered with crimson cushions, than what we have heretofore known as travelling vehicles. Two more fifty passenger cars are on their way.

"We understand that freights and fare for travellers will be made as low as practicable and lower than has usually been charged on southern roads. The concerns of the road will be under the immediate charge of Mr. Foote, as superintendant and engineer—who is well qualified by experience in that department, having filled it for some time on the Norwich and Worcester railroad, which is reputed the best built, and best managed road in the country."

The people of Macon may well congratulate themselves upon the approach of the period when this road shall be completed and thus open to them the trade of the Cherokee country, as well as that of the Tennessee valley. It will be an era in their history; an event long to be remembered, and from the following just remarks of the editor of the Messenger, we perceive that it is appreciated, and those who have been instrumental in its early accomplishment, seem to be properly estimated.

The editor says:

"*The opening of the Macon and Western Railroad, and a few thoughts connected with the new state of things thereby introduced.*

"The long and anxiously looked for time is at hand, when our communication with the Western and Atlantic railroad will be opened. The Macon and Western railroad is being completed with all the rapidity that labor, strongly sinewed by capital can accomplish. In sixty days this noble work will be done, and all along the track from Macon to Atlanta, will be exhibited the astonishing evidences of business and trade which steam, the master agent of the world, never fails to call into vigorous operation.

"For this consummation, so long and so devoutly wished, we are under weighty obligations to the stockholders in the new company, who have invested their capital in the enterprize. Contrary to the narrow prejudices of small minded people, our gratitude is the more due to the stockholders, because many of them have brought their capital from a distance to accomplish for us what we would in vain have essayed to accomplish for ourselves. Our thanks are due, too, to A. Boody under whose energetic direction the work of construction and re-construction has so rapidly progressed. And let us vote an ovation to the president of the company, that accomplished gentleman and stirring business man, Capt. Daniel Tyler, who has so soon, as if by the wand of a magician, elicited the new order of things from the chaotic state in which he found the affairs of the old Monroe railroad company.

"The completion of the Macon and Western railroad will be an auspicious result to Macon, to the stockholders in the new company, and to the state of Georgia. To Macon, because a destiny is averted which would inevitably have been hers, if this road had failed; to the stockholders, because the day of their golden anticipations is near, when the profits on their investment will roll into their treasury; and to the state of Georgia, because the permanency of her noble system of internal improvement is secured. Had the Monroe railroad proved a failure, the whole system of the state works would have inevitably perished. Our state pride, the commercial interests of Savannah, Macon and Columbus, and the voice of the tax paying citizens, would have voted the Western and Atlantic railroad to demolition, rather than it should have been made exclusively to foster and enrich the seaport of a sister state. In this view, even our rival railroad interests should rejoice in the present state of things.

"Considering the near and immediate completion of the Macon and Western railroad the question of a branch road, connecting it with the gulf waters, becomes one of great importance. It has been whispered that an union of the Hamburg and Charleston, and of the Georgia railroad companies is contemplated for the purpose of building this branch. If so, it is a happy idea, and should be carried into execution. Such a combination will insure the building of the branch at an early day, and will give strength and power to the internal improvement party in Georgia, by merging into a common interest the sectional and local questions that have heretofore arrayed the different companies in rival hostility. Let such an arrangement be made and our connection with the gulf streams by railroad will be certain and easy. Our opinion is, that the branch should be constructed from Barnesville to Columbus, and that the Montgomery and West Point road should deflect from its present direction to Girard. The large amount of business which Columbus will readily furnish to the branch road, should of itself be decisive of the question. We trust that negotiations will be set on foot at once, to bring about a concert and co-operation of our railroad companies, for this important purpose.

"We come now to consider what we mainly had in view in penning this hurried article, viz: the new business relations that will be created by the opening of the Macon and Western railroad, and the policy of our merchants in relation thereto. Few of our people have had their minds properly turned to this subject—its importance, its expansiveness, its immense ramifications have escaped their notice. A new, and an essentially different trade will be opened to Macon by the completion of the Macon and Western railroad. Heretofore our trade has been almost exclusively connected with the cotton business; hereafter it will embrace an illimitable field of human production. Our Cherokee region will be thrown open to us—the rich valleys of Tennessee will be brought close to our mart, and in a few years, from the teeming bosom of the great valley of the Mississippi, shall flow in upon us the countless, exhaustless species of produce that now go down the great father of rivers to the Crescent city. The situation of Macon is highly advantageous to profit by such a trade. Below us, to the southwest, is a fine cotton belt, within which, more and more, the labor of the state will be compressed, for growing our great staple. While the fertility of that region of the state will remunerate the planter handsomely in cotton growing, he will look to Macon, as his nearest market, to be supplied with western produce. Here, then, will be the depot for supplying all southwestern Georgia and Florida with bagging, rope, flour, bacon, etc.

"But to realize the benefits thus within our grasp, our merchants have a work to perform. They should at once establish business connections with Cherokee and Tennessee, and into every nook and corner of these regions push their acquaintance. Being farming districts, the trade of Cherokee and Tennessee will partake much of the barter character, which, by the way, has ever been the greatest source of mercantile wealth.—The corn, flour, bacon, feathers, beeswax, hides, and other articles of domestic production, which the merchants in these regions

will exchange for goods bought in this market, will be readily convertible into cash, if not here, by shipment to larger markets.—Charleston and Augusta are actively engaged in securing this trade. Merchants from these cities, or their accredited agents, are daily traversing every part of that interesting and lovely region, soliciting trade, making acquaintances, and securing customers. And what are the Savannah and Macon merchants doing at this important juncture? Supinely folding their arms, we fear, or dolefully, as is their custom, counting their eternally recurring losses on cotton. Surely Savannah and Macon will put forth an effort, at least to share with their rival cities the rich trade which will be soon opened to them. We appeal to the merchants of Savannah and Macon to turn their attention to this matter. Let them go to the up country and spend their summer months, instead of wasting their money and time at fashionable hotels and watering places at the north, and our word for it, they will be richly recompensed by a large increase of business, and the accumulation of ample fortunes."

Institution of Civil Engineers.—*May 26, The President (Sir John Rennie) in the Chair.*—The paper read was "A Memoir on the Resistances to Railway Trains at different Velocities." By Wyndham Harding, Assoc., C. E. It commenced by describing several series of experiments which had been made by different persons with a view to determining the resistance at various velocities; some new experiments made by the writer on broad gauge and atmospheric lines bing given in detail. Great difference of opinion on the amount of resistance prevailed in 1837, when a committee of the British association examined the subject and reported upon it.—Notwithstanding this, it was found in 1845, that the estimates taken by some engineers of the resistances per ton at high velocities exceeded those acknowledged by other engineers by as much as 300 per cent. It appeared that the same low estimate of resistance was advanced by the advocates of the broad gauge before the gauge commissioners. It became therefore a matter of great interest, both in a theoretical and practical point of view, to determine which of these two estimates (differing thus widely) was correct; and the inquiry was stated to have been facilitated by the application of two novel and direct modes of measuring resistances recently afforded to engineers by the atmospheric railway apparatus, and the application of Morius' dynamometer, to determine the tractive force in propelling railway trains, as used by Mr. Scott Russel in his experiments. In arranging the vast number of results afforded by experiments, the author proceeded on the following principle: He collected together all the results of experiments which exhibit uniform velocities maintained on a calm day, and on a line free from sharp curves: these results he calculated and projected in diagrams, and he showed that between these results there subsisted the most satisfactory agreement and consistency. He argued that the agreement of so many experiments made by different persons with different objects on different lines of railway during the last seven years, the resistance being measured in no less than four different ways, leads almost irresistibly to the conclusion, that the increase of resistance with the velocity was such as these various experiments indicated. The result was, that the resistance per ton to a passenger train of, say 30 tons, at a speed of 60 miles per hour, would be upwards of 50 lbs. per ton, instead of 18 lbs. per ton, or nearly three times as much as had been estimated by some engineers. The author, in pointing to the results of these experiments, stated that he desired not to express any opinion in the papers on the advantages or disadvantages of the atmospheric system, or upon the other practical points referred to; and then proceeded to apply to the experimental facts a formula expressing the law suggested by Mr. Scott Russel, which appeared to afford results closely agreeing with the experiments. The paper concluded with some remarks on the application of the experimental results exhibited, which demonstrated the great increase of resistance with the velocity (it being with a light train four times as much at 60 miles an hour, as at 10,) to the calculation of the power of the locomotive engines, to the propelling power which, he contended, must be provided in the atmospheric system beyond that which had been calculated upon as necessary to the questions of gauge and of gradient; on all these points the law which at present appeared to be established had, he stated, the most direct and important bearing; and the doctrines and modes of calculation till recently in use, as regarded propulsion on railways, would he believed, require great modification. The paper was illustrated by several tables and diagrams. A gas-burner of a novel and ingenious construction was exhibited. The principal feature of novelty was the introduction of a stream of air to the centre of the flame by means of a hollow button in the middle of the burner. The air passing up through the hollow stem of the button was heated and passed out by two series of fine holes around the periphery, and impinging it with more force with the flame of the gas curved it outward in the shape of a tulip, while the oxygen of the air mingling with the carburetted hydrogen gas produced a very perfect combustion. The flame was quite white down to the top of the burner, and it was very steady, as was amply demonstrated by the excellent light in the theatre of the institution, where these burners have been used for some time. It was stated that in comparing the consumption of these burners with that of the concentric ring burner, and trying the power of the two lights with the photometer, the new burner gave a better light with a saving of rather more than one-third of the gas consumed. It was, we believe, called the "universal burner," and was introduced by Mr. M'Neil. The paper announced for June 9th (the next meeting,) was "A Description of the Iron Swing-brige over the Wensum, near Norwich," by G. P. Bidder, M. I., C. E.—*Mining Journal.*

Manufacture of Gutta Percha.—This newly discovered substance which has only been introduced to this country within the last three years, is already found to possess properties which will render it highly important in the arts. Mr. Brooman, of Fleet street, has obtained a patent for its application, in various ways, as an ingredient in artificial fuels, mastics, and cements. In his specification, he describes five kinds of artificial fuel; the first composed of 80 or 90 parts of small coal and pitch from coal tar, to 20 or 10 parts of gutta percha; the second of 7 parts of gutta percha, 8 of small coal, 4 of saw-dust, add 1 of coal tar, or pitch. These are fuels for ordinary purposes; the 3 others are for burning, to obtain the deposit, or unconsumed carbon, as a fine pigment for the manufacture of printing inks: one is composed of 3 parts of gutta percha, and one of coal tar; another of gutta percha and caoutchouc, in equal quantities; and the last of gutta percha alone. In preparing this substance for the manufacture of various mastics, coating for hempen, woollen and other fabrics, required to be water proof, it is first freed from all foreign matters with which it may be mixed, by undergoing a washing process in a water tank, kept up to a temperature of from 180° to 200° Fah., into which it is passed several times between two steel or iron rollers, immersed in the water: thus prepared, it may be applied either in a plastic, granular, or soluble state. For the first, it is well worked in a kneading machine; for the second, it is rasped into a fine powder—and in these states, it may be combined with sulphur, various powders, colors, bristles, saw-dust, etc.; and for the last, it is disolved in rectified naptha, or oil of turpentine: these the patentee prefers, although it is soluble in nearly all the essential oils.—The articles of manufacture to which the gutta percha thus prepared is most usefully applicable, are single and double fabrics of cotton, wool, and other fibrous materials, leather and membraneous textures, table covers, floor cloths, goods' wrappers, tarpaulings, printers' blankets, driving bands, etc.; also, in the plastic state for glass and picture frames, cornices, pannelling, and other architectural ornaments, mosaics, buttons, studs, labels, balls, bracelets, armlets, garters, rings, reins, bridles, belts, bands, and various other descriptions of articles, which are never exposed to more than ordinary degrees of temperature.—*Mining Journal.*

The Atmospheric System.—Croydon Railway.—After the business had been transacted at the special meeting of shareholders, on Monday last, Mr. Samuda proceeded to give some account of the working of the atmospheric system on the line. He stated that since he had last reported, the number of trains had been increased from 32 to 39 per diem. This was absolutely necessary from the rapid increase of the traffic, and the result of the increase of accommodation had proved most satisfactory. The regularity of the trains had been very much increased, though occasionly some irregularity occurred from the difficulty experienced in getting over the

viaduct, unless the trains have started at such rapid speed as to carry them over by the momentum given. He had, therefore, directed his attention towards a removal of the difficulty, and he proposed a plan which he believed would have that effect. He proposed to fix at the top of the viaduct a small cylinder, to be worked by a vacuum produced in the tube. This will give motion to a small capstan, which will lift the train on, on the principle of the crane, and will effect the passage of the trains over the viaduct, irrespective of any momentum given. The most erroneous statements he said, had been circulated with respect to the working expenses of the atmospheric system. It was affirmed, that the cost amounted to 2s. 10d. per train per mile. Now, he had instituted a comparison into the cost of the two systems; and he found, from the data afforded by the last half year's account, on the one hand, and the actual charges of the atmospheric system on the other, that, notwithstanding all the difficulties with which they had now to contend, the saving had been about 22 per cent., and with increased expense, and after the introduction of engines constructed on an improved principle, it would be much less. Each stationary engine worked a distance of 3 miles at an expense of about four guineas a day. With greater experience on the part of the workmen, and with engines on a better principle, he calculated they would be able to limit the expenditure of each engine to three guineas, which, excluding the expense of the terminal engine, would give an average cost of about 6d. per train per mile, or a saving of about 3d. Engines on a new principle were in course of construction by Messrs. Boulton and Watts. The chairman, in reply to a question from a proprietor, stated that the directors expect that the Croydon and Epsom line will be opened in the autumn. He might also state that, if the traffic on the Croydon railway progressed as it had done of late they would soon be in a condition to lay down a double line on the atmospheric system. In the first fortnight in the month of May, 1843, the number of passengers carried over the line amounted to 8,500. In the corresponding period of this year the traffic amounted to 43,000 passengers.—*Mining Journal.*

Labor on Railways.—We have obtained returns from about 300 miles of railways now under construction, and we find that on them there are now employed 29,000 men and 3,000 horses. This amount comprehends one-fourth only of the lines now in progress of construction; therefore, we may assume 120,000 men and 12,000 horses as the total number employed. The wages paid for these men and horses is £500,000 per week, or £26,000,000 per annum, directly expended on railway wages. This amount consists of wages merely for men directly employed on the line. Half as much again is expended *indirectly* on labor, preparing rails, chairs, stock, etc., for the line, and on land and other materials as much more. We have stated that on 300 miles we have returns at 29,000 men and 3,000 horses employed. But this is not the proper quantity required for the labor.—We have before us the engineers returns, by which we find that they require, in order to complete the works in time, an additional supply of nearly 20,000 or that 48,000 men and 5,000 horses is the proper number that should be employed. Moreover, we find that these additional men must be had in order to do the work already stipulated. These additional men cannot be obtained, and the very attempt to obtain them would merely have the effect of enhancing the cost of the present hands without materially increasing the supply. We see, therefore, that the present supply of hands is deficient—that any attempt to increase the supply would fail, because it would enhance prices beyond all possibility of profitable investment. We do not believe, as an eminent engineer has stated, that present prices are 50 per cent. dearer than this time last year. That is an exaggeration. Prices are however, kept down only by the wisdom which has hitherto moderated the demand to the means of supply.—Let us have an injudicious increase of demand, and prices will at once become preposterous.—*Railway Chronicle.*

Atmospheric Railways.—The atmospheric system is becoming daily more and more in favor of the continent, and the more experienced and scientific engineers of each state are now testing the best method to be adopted.—Councillor Schmid, the inspector of the state railways of Austria, who was commissioned by the government to visit England and France, to study the different systems of atmospheric propulsion, has returned to Vienna: his report on the atmospheric system is very favorable, and it appears that the Austrian authorities intended to apply the principle for crossing the Alps—a part of which they will have to blast, so as to carry out the line from Vienna to Trieste, also for crossing the mountain of Semmering, which at present intercepts the free or uninterrupted line to the south. When this grand undertaking is accomplished, of which there is very little doubt the exertions of lieutenant Waghorn, for transmitting the overland India mail from Alexandria to Trieste, via Austria and Ostend, will be fully successful, instead of through France, via Marseilles.—*Mining Journal.*

The project of connecting the Wilmington, [N. C.] railroad with that of South Carolina, finds increased favor in both of those states, and is likely to be carried out in due time.

A CARD.

TO THE CITIZENS OF NEW YORK.

After a residence of over *twenty-one* years in this city, I find it for my interest to seek, in a neighboring city, a new home, where I hope to derive more ample reward for honest and unremitting industry and enjoy the satisfaction of knowing that my past labors have contributed somewhat to the general prosperity, if not materially to my own.

Having, for so long a period, participated in the excitements and activity of this growing city, and witnessed its prosperity and rapid advancement—yet without sharing largely in its enjoyments—I cannot leave it without regret, nor without acknowledging my obligations, and gratitude, to the many kind friends, who have at all times cheered and encouraged me on; but more especially to those *few* who so generously sustained me at a period when all was lost, save a determination to succeed.—Here I have labored for the general prosperity; and have the vanity to believe that the great destiny that awaits you has not been retarded by my efforts; *there* I shall provide the comforts required by the body—and therefore solicit in my new habitation, and new vocation, a continuance of your approval, and an increase of your patronage. I shall feel, while I labor for the wants of the outer man—while I provide and supply, in a superior manner, the comforts and social enjoyments of life—that I am but "laboring in the vocation" that contributes "the greatest good to the greatest number."

In the "Franklin House," 105 Chestnut street, Philadelphia, heretofore kept by Messrs. J. M. Sanderson & Son—my future residence after the 1st of July—I hope to meet many of those faces which, during a long residence here, have become familiar to me, and grasp many an honest hand, and exchange many a kind salutation, with warm and sincere friends.

The house is now undergoing a thorough renovation, and extensive improvements are to be made, by the addition of a convenient and well arranged *ladies ordinary*, a spacious new dining room for gentlemen, several new parlors, and many new and convenient lodging rooms. It will be newly painted throughout, and mainly refurnished, and thus be placed on a footing with the best Hotels in Philadelphia. I shall be aided in its management, by Mr. James M. Sanderson, long favorably known as one of the gentlemanly proprietors of the Franklin House, and as a caterer unsurpassed in the country; and also by the celebrated *Chef de Cuisine* Pelletier, who has also been connected with the house during the past four years, and whose superior, as an *artiste* in his line, in this country, *is yet to be found.*

With such a house, and such aid in its management, I do not hesitate to say, to those friends and acquaintances who have known me during the past twenty years, and to others who have not, that they will find good accommodation, good fare, and all desirable attention to their wishes when they call at the Franklin House, and upon their obedient servant,

D. K. Minor.

VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe, with lathes, work benches,

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side o Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide

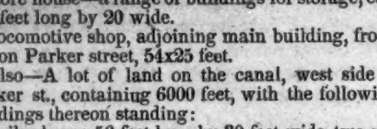
For terms, apply to HENRY ANDREWS, 48 State st., or to CURTIS, LEAVENS & CO., 106 State st., Boston, or to A. & G. RALSTON & Co., Philadelphia. ja4

TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

PASCAL IRON WORKS.

WELDED WROUGHT IRON TUBES

From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by

MORRIS, TASKER & MORRIS.

Warehouse S. E. Corner of Third & Walnut Streets,

PHILADELPHIA.

TO LOCOMOTIVE AND MARINE ENgine Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

Warehouse S. E. corner 3d and Walnut Sts., Philadelphia. 1tf

LAP—WELDED

WROUGHT IRON TUBES

FOR

TUBULAR BOILERS,

FROM 1 1-2 TO 5 INCHES DIAMETER,

and

ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,

Patentee.

25 28 Platt street, New York.

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

ALFRED L. KEMP,

75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	Tons.
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.	
11	4¼	13	5	10	24	–	50	15-16	20
13	3½	8	3	8½	16	–	27	11-16	13½
14	3¼	6	11	7½	12	8	17	9-16	10½
15	2⅞	5	2	6½	9	4	13½	1-2	7½
16	2⅝	4	3	6	8	8	10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

RAILROAD IRON.—The subscriber having taken contrats for all the Railroad Iron he can manufacture at his Iron Works at Trenton, until July next, will gladly receive orders for any quantity to be delivered after that time, not exceeding thirty tons per day. Also has on hand and will make to order Bar Iron, Braziers' Rods, Wire Rods and Iron Wires of all sizes, warranted of the best quality. Also manufactures and has on hand Refined American Isinglass, warranted equal in strength to the Russian. Also on hand a constant supply of Glue, Neats' Oil, &c. &c.

PETER COOPER, 17 Burling Slip.

New York, January 23d, 1846. 1y 10

RAILROAD IRON—500 TONS OF 67 LBS. per yard—5 inches high—of the *double headed* pattern, which is now wholly used in England—now on the passage, and a further quantity will be contracted for. Also

500 tons T pattern, 56 lbs. per yard, for sale by

BOORMAN, JOHNSTON & CO.

4t24 119 Greenwich street.

LAWRENCE'S ROSENDALE HYDRAulic Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,

142 Front street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz:

180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ½ " Flange Iron Rails.
75 " 1 x ½ " Flat Punched Bars for Drafts in Mines.

A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1tf

SPRING STEEL FOR LOCOMOTIVES, Tenders and Cars. The Subscriber is engagep in manufacturing Spring Steel from 1¼ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used, its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address

JOAN F. WINSLOW, *Agent*,

1y Albany Iron and Nail Works,

CALIGRAPHIC BLACK LEAD PENcil, Manufactured by E. Wolff and Son, 23 Church Street, Spitalfields, London.

The Caligraphic Pencils have been invented by E. Wolff and Son, after the expenditure of much time and labor. They are the result of many experments; and every effort that ingenuity and experience could suggest, has been made to insure the highest degree of excellence, and the profession may rely upon their being all that can be desired.

They are perfectly free from grit; and for richness of tone, depth of color, delicacy of tint, and evenness of texture, they are not to be equalled by the best Cumberland Lead that can be obtained at the present time, and are infinitely superior to every other description of Pencil now in use.

The Caligraphic Pencils will also recommend themselves to all who use the Black Lead Pencils as an instrument of professional importance or recreation, by their being little more than half the price of other pencils.

An allowance will be made on every groce purchased by Artists or Teachers.

May be had of all Artists, Colourmen, Stationers, Booksellers, etc.

A single pencil will be forwarded as a sample, upon the receipt of postage stamps to the amount.

Caution.—To prevent imposition, a highly finished and embossed protection wrapper, difficult of imitation, is put around each dozen of Pencils. Each Pencil will be stamped on both sides, "Caligraphic Black Lead, E. Wolff and Son, London."

The subscriber has on hand a full supply of Wolff and Sons celebrated Creta Loevis, or Colored Drawing Chalks, also their pure Cumberland Lead and extra prepared Lead Pencils, and Mathematical Lead Pencils.

P. A. MESIER,

Stationer and Sole Agent,

No. 49 Wall Street.

N. B.—A complete assortment of Steven's *Genuine* Inks, Fluids, Imitating Wood stains, and Graining Colours at the Manufacturers prices. 19tf

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer*,

Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railrord, has now run 4 seasons, and is still in good condition. 2v19 1y

BACK VOLUMES OF THE RAILROAD JOURNAL for sale at the office, No. 23 Chambers street.

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

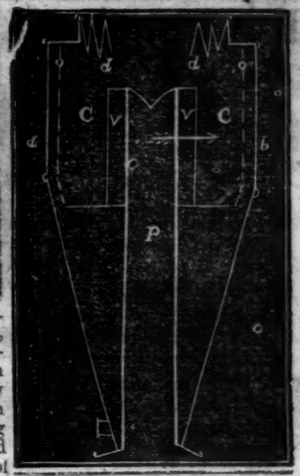
All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, *Agent.*

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 222 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufcturing so as to keep pace with the daily increasing demand. ja45

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.



TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich; G. B. Fisk, President Long Island Railroad, Brooklyn.

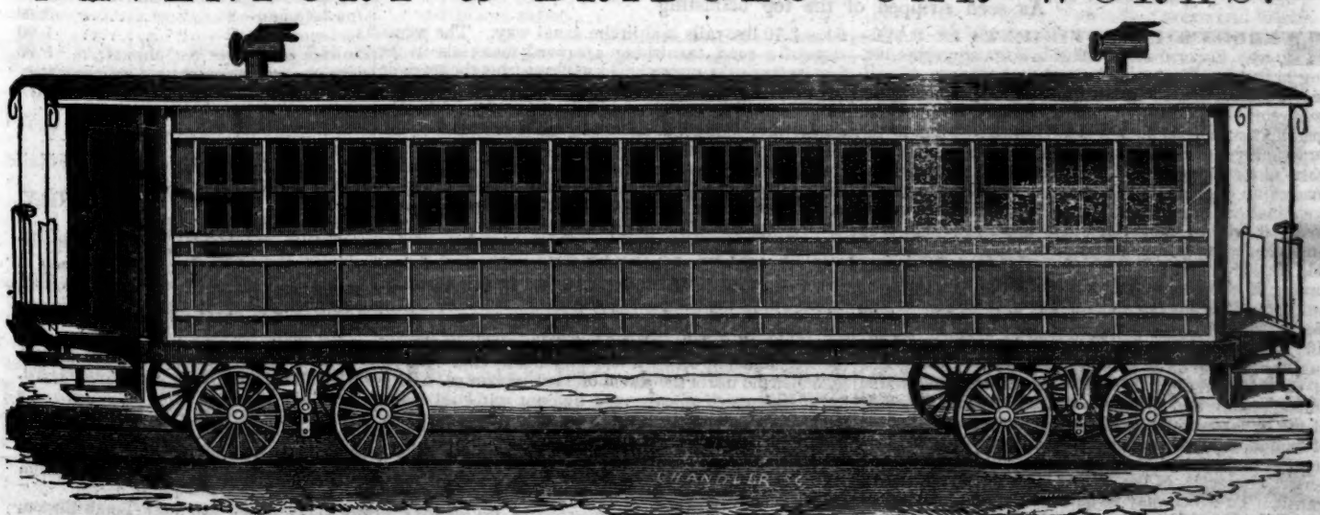
Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms. *Philadelphia, Pa., April* 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

BENTLEY'S PATENT TUBULAR STEAM BOILER. The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco Dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York. a

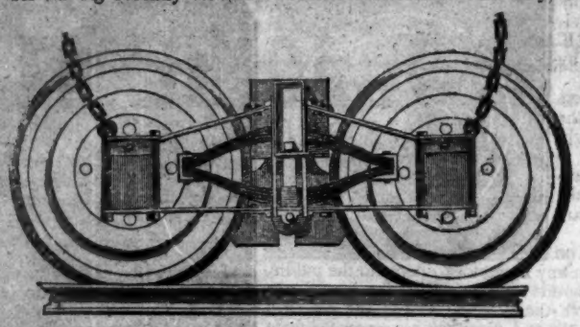
DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minues. 1y1

RAY'S EQALIZING RAILWAY TRUCK.—THE SUBSCRIBER having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East river, (of which firm the subscriber was late a partner) under the immediate supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the bes and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL,
Sup,t Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use. [Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845. } [Signed,] JOHN LEACH, Sup't Motive Power.

1y19

HERRON'S PATENT AMERICAN RAILWAY TRACK,

As seen stripped of the top ballasting

HERRON'S IMPROVEMENTS IN RAILway Superstructure effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the *wear* and *tear* of the *engines* and *cars*, by the *even surface* and *elastic structure* of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really *permanent* and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from $2,300 to $4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to 60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thonsand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in *perfect adjustment*, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportrtion, for *Two hundred dollars per mile per annum.** To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only $750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

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* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed $625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made. 1y1